



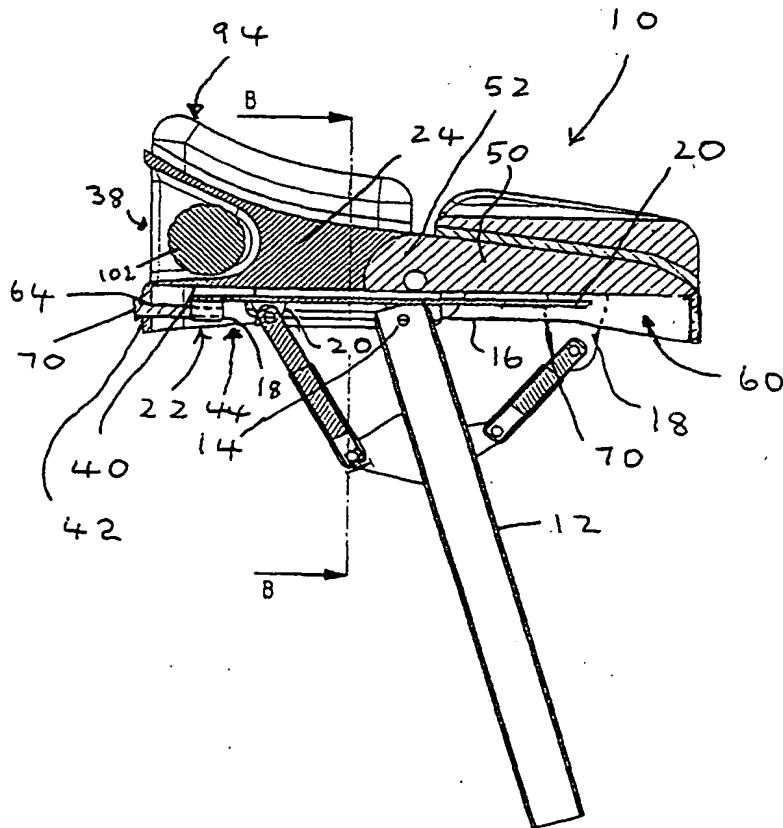
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(54) Title: SADDLES FOR CYCLES

(57) Abstract

A saddle (10) is disclosed which comprises a chassis (22) which carries two padded supports (92, 94). The supports (92, 94) can be displaced with respect to one another and with respect to the chassis (22) to alter the configuration of the seating surface of the saddle. A saddle nose (50) and the chassis (22) can be displaced in the front to rear direction with respect to a base plate (16) and the saddle nose (50) can also be tilted with respect to the base plate (16). The ischial tuberosity support padding (98) can be varied in hardness by changing the pressure on liquid filled sacs (112) inside the padding.



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SADDLES FOR CYCLES

FIELD OF THE INVENTION

THIS INVENTION relates to saddles for cycles.

BACKGROUND TO THE INVENTION

It is a medically accepted fact that the pressures exerted by conventional cycle saddles on the human body can cause permanent damage, particularly to the reproductive organs. This is particularly true of saddles which are narrow and have a pronounced ridge down the centre. Such a saddle provides no support for the ischial tuberosities. The pressure of the ridge on the genital organs can be excessive and damaging.

In an effort to avoid these problems Applicant has been manufacturing and selling a saddle which has a groove along the centre of the upper surface and which is designed to provide support for the ischial tuberosities. The saddle thus has two supporting pads which are narrow at the front and broaden towards the rear. This construction takes pressure off the genital organs but still does not necessarily properly support of the anatomy of all riders.

The present invention seeks to provide a saddle which can be adjusted with a view to customizing it to the requirements of cyclists of different sizes, shapes

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and body weights.

BRIEF DESCRIPTION OF THE INVENTION

According to one aspect of the present invention there is provided a chassis, a pair of padded supports for the ischial tuberosity regions of the rider, the supports being carried by the chassis and means for displacing said supports with respect to the chassis to enable the configuration of the seating surface of the saddle to be changed.

According to a further aspect of the present invention there is provided a saddle comprising a padded support, a fluid filled sac within the padded support and means for varying the pressure of the fluid in the sac to vary the hardness of the padded support.

According to another aspect of the present invention there is provided a saddle comprising a base plate, a chassis mounted on the base plate, means for raising and lowering the rear end of said base plate about an axis transverse to the front to rear direction of the saddle, padded supports carried by said chassis for supporting the ischial tuberosity regions of the rider, said padded supports tilting with the base plate when the base plate is tilted, and means for moving the padded supports with respect to the chassis thereby to alter the configuration of the seating surface of the saddle.

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According to still further aspect of the present invention there is provided a saddle comprising a chassis, a pair of padded supports for the ischial tuberosity regions of the rider, the supports being carried by the chassis, means for displacing said supports with respect to the chassis to enable the configuration of the seating surface of the saddle to be changed, a fluid filled sac within each of the padded supports, means for varying the pressure of the fluid in the sacs to vary the hardness of the padded supports, a base plate, the chassis and a chassis nose being mounted on the base plate, a post for connecting the saddle to the remainder of the cycle, and means for tilting the base plate, chassis and the chassis nose with respect to the means which connects the base plate to the remainder of the cycle.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:-

Figure 1 is a pictorial view illustrating the components of a cycle saddle in accordance with the present invention;

Figure 2 is a side elevation of the saddle;

Figure 3 is a front elevation of the saddle;

Figure 4 is a section on the line A-A of Figure 3;

Figure 5 is a section on the line B-B of Figure 4;

Figure 6 is a section on the line C-C of Figure 2;

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Figure 7 is a top plan view of the saddle; and

Figure 8 is a section on the line D-D of Figure 7.

DETAILED DESCRIPTION OF THE DRAWINGS

The saddle 10 illustrated in the drawings comprises a post 12 which secures the saddle 10 to the frame (not shown) of the cycle. At its upper end the post 12 is pivotally secured by a transverse bolt 14 to the underside of a bed plate 16. The bed plate 16 has a boss 18 on the underside, the horizontal bore of the boss 18 being tapped. A pair of lugs 20 (see particularly Figure 4) is provided on the underside of the plate 16.

The main chassis designated 22 comprises a central rib 24 which is inclined from a higher rear end to a lower front end (see particularly Figure 4). The underside of the rib 24 is split into two webs 26 (see Figure 6) each of which has a slot 28 therein, the slots 28 being elongate in the front to rear direction.

The chassis 22 further inclines two curved walls 30 which merge with the central rib 24 at the front end thereof and with the webs 26 at the rear thereof. The rib 24 and walls 30 define two upwardly open cavities 32 which are closed at their lower ends by horizontal bases 34. There is a circular hole 36 (Figure 1) in each base 34. At the rear of the chassis 22 there is a rearwardly open cavity 38 bounded by the webs 26, the rear part of the rib 24 and a base wall 40. Around the base wall 40 there is a depending rim 42 (Figure 4) which bounds a downwardly

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open cavity 44. As best seen in Figure 5 the chassis 22 has two inwardly facing guides 46 on the underside thereof. The plate 16 is in these guides.

The front end of the chassis 22 has a vertical slot 48 therein. Ahead of the main chassis 22 is a chassis nose 50.

The chassis nose 50 has a rearwardly protruding trunnion 52 which fits in the vertical slot 48 of the chassis 22. As best seen in Figures 1 and 4 the rear end of the nose 50 is formed with a part cylindrical recess 54 so that the part cylindrical front end of the chassis 22 fits snugly in the rear end of the chassis nose 50. The trunnion 52 has a bore 52.1 therein and the chassis has a bore 22.1. Once these bores are aligned, a pivot pin (not shown) is inserted so as pivotally to connect the chassis and chassis nose.

The chassis nose 50 has depending mounting lugs 56 each of which has a hole 58 therein. In the underside of the chassis nose there is a slot 60 (see, Figure 4) which runs in the front to rear direction. The lugs 56 are one on each side of the slot 60. The front end of the slot 60 is closed by a depending wall 62 and the bed plate 16 is in the slot 60. The slot 60 provides a guide for the nose 50 similar to the way in which the chassis 22 is guided on the plate 16.

At the rear of the saddle the skirt 42 has a hole 64 in it. A threaded adjusting screw 70 is passed through the hole 64 and screwed into the tapped bore

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of the boss 18. The screw 70 is rotatable in the hole 64 but restrained against axial movement.

Two plates 72 are secured one to each side of the post 12. Each plate 72 has a hole 74 at the front end and a hole 76 at the rear end. One part 78 of a turnbuckle 80 lies between the plates 72 and is pivotally connected to the plates 72 by a pin 82. A second part 84 of the turnbuckle 80 has a section thereof in the part 78 and at its other end is pivotally connected to the lugs 56. Similarly the parts 86 and 88 of another turnbuckle 90 are connected between the plates 72 and the pair of lugs 46. The turnbuckles 80 and 90 respectively include captive nuts 78.1 and 86.1 (only shown in Figure 2) carried by the parts 78 and 86. The nuts can rotate but not move axially. The parts 84 and 88 are threaded. As the nuts are turned the parts 84 and 88 move in and out of the parts 78 and 86.

The cavities 32 receive a pair of padded supports generally designated 92 and 94. The supports 92 and 94 are mirror images of one another and each comprises a lobe 96 and padding 98. The padding 98 is adhered or otherwise secured to the lobes 96.

A rod 100 with an operating wheel 102 at its centre spans between the webs 26 and passes through the slots 28. The ends of the rod 100 are threaded and screwed into tapped transverse bores 104 in elements in the form of bushes 106. The bushes 106 are fitted into vertical bores 108 (see Figure 8) provided

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therefor in the lobes 96. The threading is of opposite hand.

The front ends of the lobes 96 are pivotally mounted by pins 110 (Figure 6) onto the bases 34. The pins 110 pass through the holes 36.

Within each lobe 96 and associated padding 98 there is a gel filled sac 112. Each sac 112 has an upper part 114 which is within the padding 98 and a lower part 116 within the lobe 96. A tube 118 connects the upper and lower parts 114, 116.

A plate 120 bears on the underside of each lower sac part 116 and can be displaced vertically by a stud 122. The studs 122 pass through the bases 34 and the lower parts 116 of the gel sacs.

Padding designated 124 is adhered or otherwise secured to a plate 126 which has, both in plan and side elevation, a configuration which conforms to that of the chassis nose 50. The plate 126 is adhered to the chassis nose 50. The configuration of the padding 124 is best seen in Figure 3.

The configuration and characteristics of the saddle 10 can be adjusted in the following manner. The angle of the chassis nose 50 with respect to horizontal can be adjusted by lengthening or shortening the turnbuckle 80. The chassis nose 50 pivots about the pin in the bores 22.1, 52.1. The angle of the plate 16, and

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hence of all the parts carried thereby, can be adjusted by means of the turnbuckle 90. It will be understood that in the first of these adjustments the chassis and chassis nose move relatively to one another and in the second they move in unison.

To displace the chassis 22 and chassis nose 50 horizontally backwards or forwards the screw 70 is rotated, causing the chassis 22 and chassis nose 50 to move backwards or forwards with respect to the plate 16.

By turning the wheel 102, the rod 100 is rotated in the threaded bores 104 of the bushes 106 thereby displacing the padded supports 92, 94 towards or away from one another and thus causing the buttocks to be supported at varying positions.

The hardness of the padding 98 can be adjusted by rotating the studs 122 independently of one another thereby displacing said plates 120 towards or away from the walling of the gel sacs 112 and changing the pressures in the gel sacs 112.

CLAIMS:

1. A saddle comprising a chassis, a pair of padded supports for the ischial tuberosity regions of the rider, the supports being carried by the chassis and means for displacing said supports with respect to the chassis to enable the configuration of the seating surface of the saddle to be changed.
2. A saddle according to claim 1, in which each padded support is elongate in the front to rear direction of the saddle, and said means is arranged to displace the rear ends of the padded supports towards and away from one another.
3. A saddle according to claim 2, wherein the front ends of the padded supports are pivotally mounted on the chassis whereby said means moves said rear ends arcuately with respect to the pivotal mountings.
4. A saddle according to claim 3 and including a rod, a wheel on the rod by means of which it can be rotated, the rod having first and second threaded portions, the threading of said portions being of opposite hand, and elements forming parts of said supports and having tapped bores therein, said rod being screwed into the tapped bores of said elements, rotation of the rod displacing said elements and hence said padded supports in opposite directions.
5. A saddle comprising a padded support, a fluid filled sac within the

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padded support and means for varying the pressure of the fluid in the sac to vary the hardness of the padded support.

6. A saddle according to claim 5, wherein said means comprises a member which bears on the external surface of the walling of the sac and means for urging the member towards and away from said walling to vary the volume of said sac.

7. A saddle according to claim 6, wherein said sac comprises a first part within said padded support, a second part external of said padded support and a tube joining said parts, said member contacting the walling of said second part.

8. A saddle comprising a base plate, a chassis mounted on the base plate, means for raising and lowering the rear end of said base plate about an axis transverse to the front to rear direction of the saddle, padded supports carried by said chassis for supporting the ischial tuberosity regions of the rider, said padded supports tilting with the base plate when the base plate is tilted, and means for moving the padded supports with respect to the chassis thereby to alter the configuration of the seating surface of the saddle.

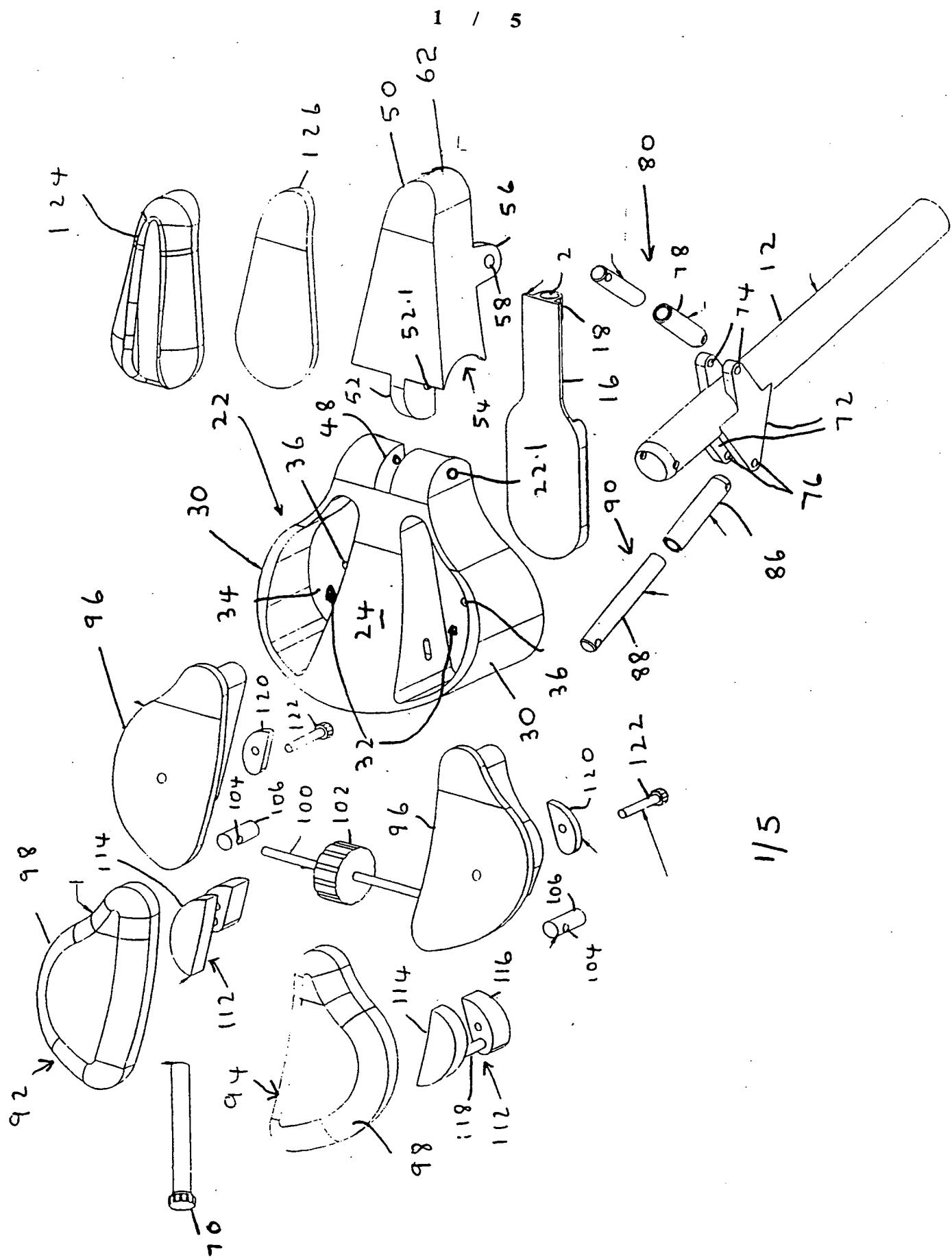
9. A saddle according to claim 8, and including a padded saddle nose forming the front part of said seating surface of the saddle, there being means for displacing said saddle nose with respect to said base plate and chassis about an

-11-

axis transverse to the front to rear direction of the saddle thereby to alter the configuration of the seating surface of the saddle.

10. A saddle according to claim 9, and including means for displacing said chassis and saddle nose in the front to rear direction with respect to the base plate.

11. A saddle comprising a chassis, a pair of padded supports for the ischial tuberosity regions of the rider, the supports being carried by the chassis, means for displacing said supports with respect to the chassis to enable the configuration of the seating surface of the saddle to be changed, a fluid filled sac within each of the padded supports, means for varying the pressure of the fluid in the sacs to vary the hardness of the padded supports, a base plate, the chassis and a chassis nose being mounted on the base plate, a post for connecting the saddle to the remainder of the cycle, and means for tilting the base plate, chassis and the chassis nose with respect to the means which connects the base plate to the remainder of the cycle.



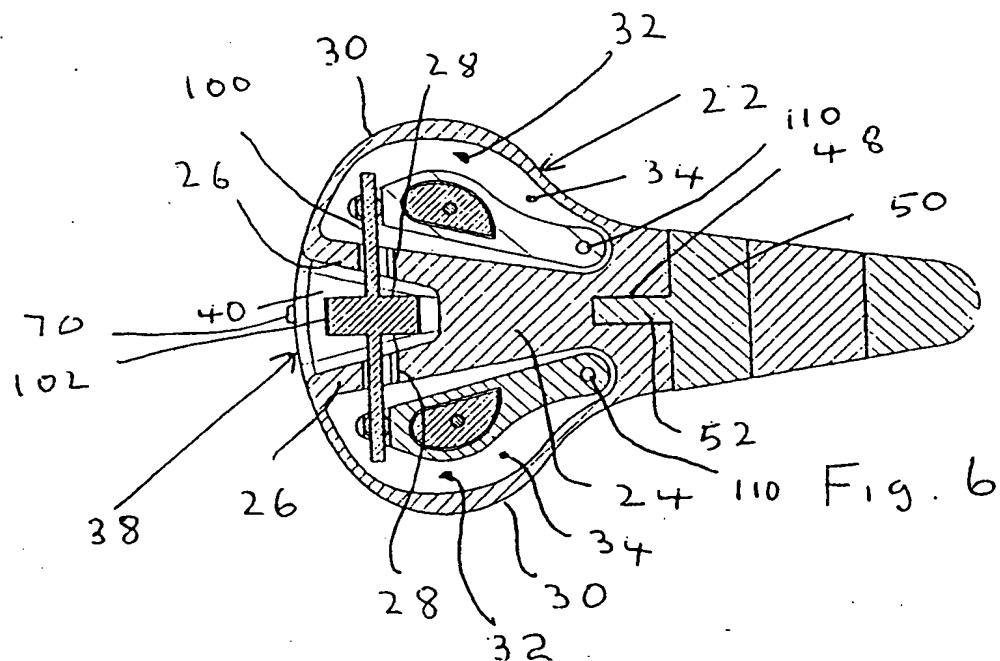


Fig. 6

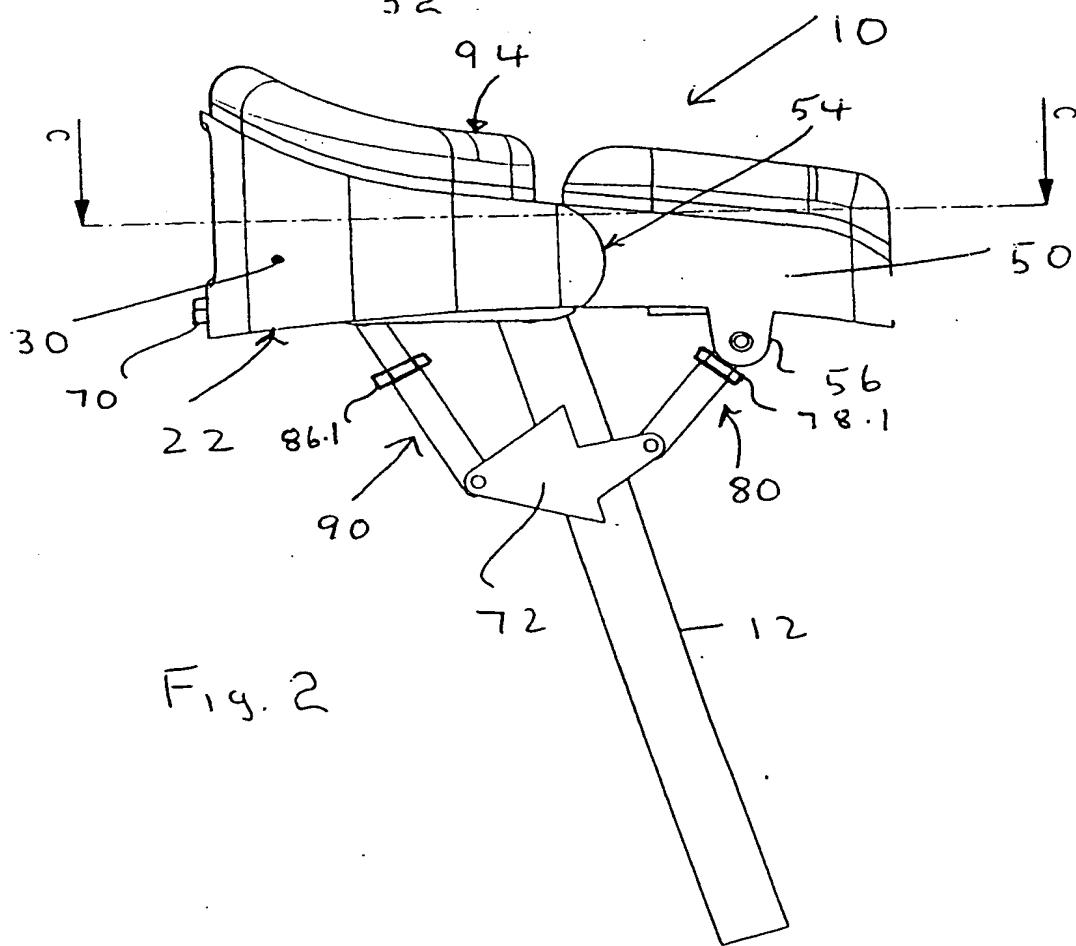
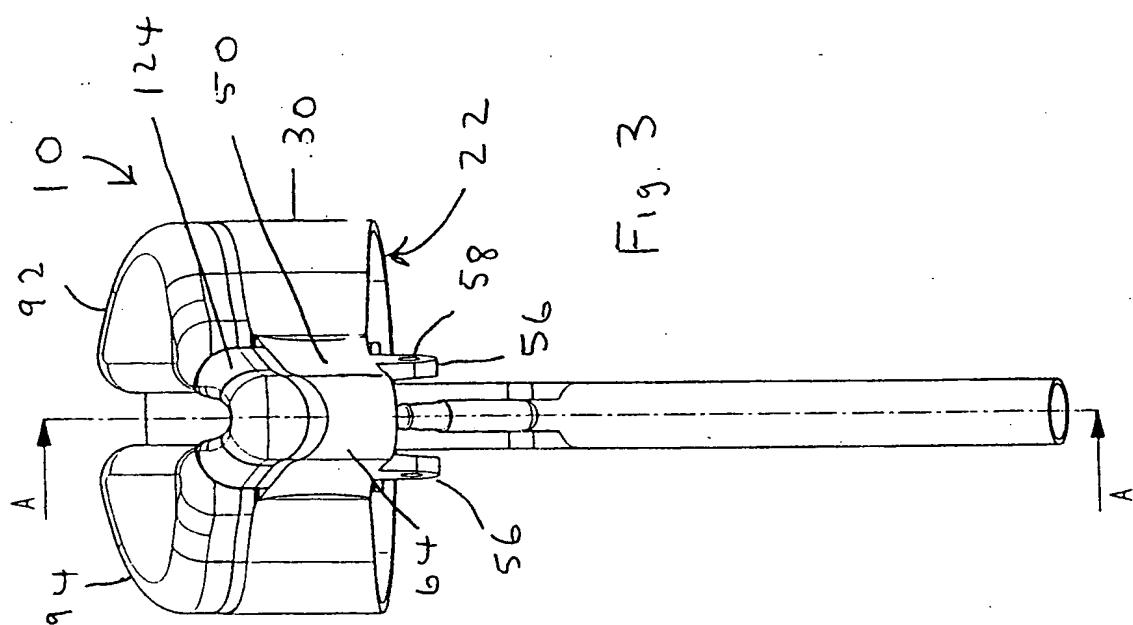
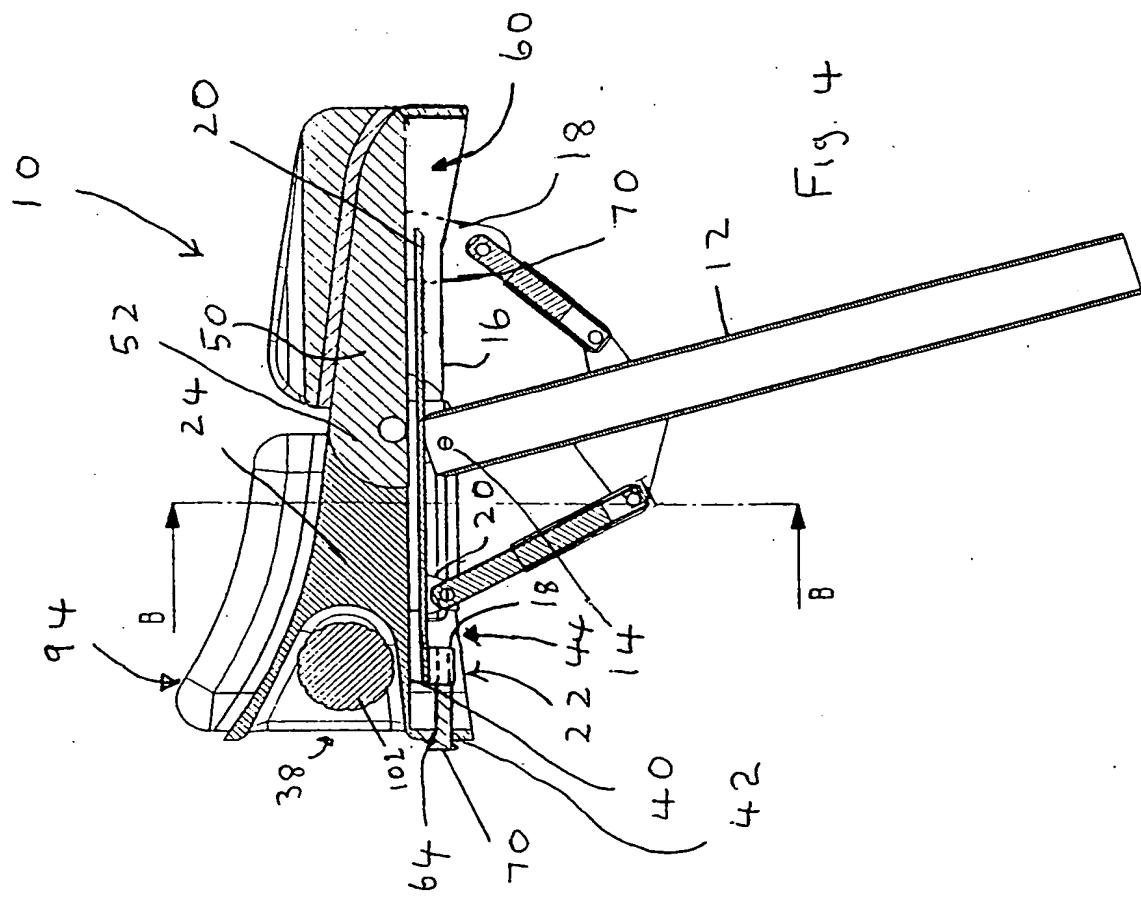


Fig. 2

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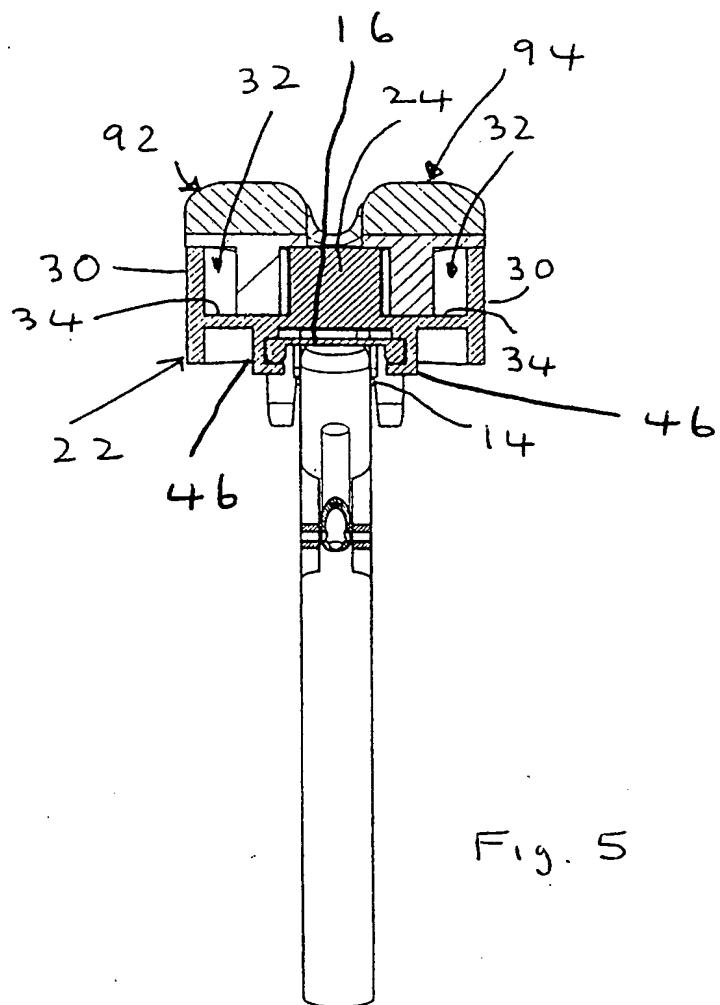


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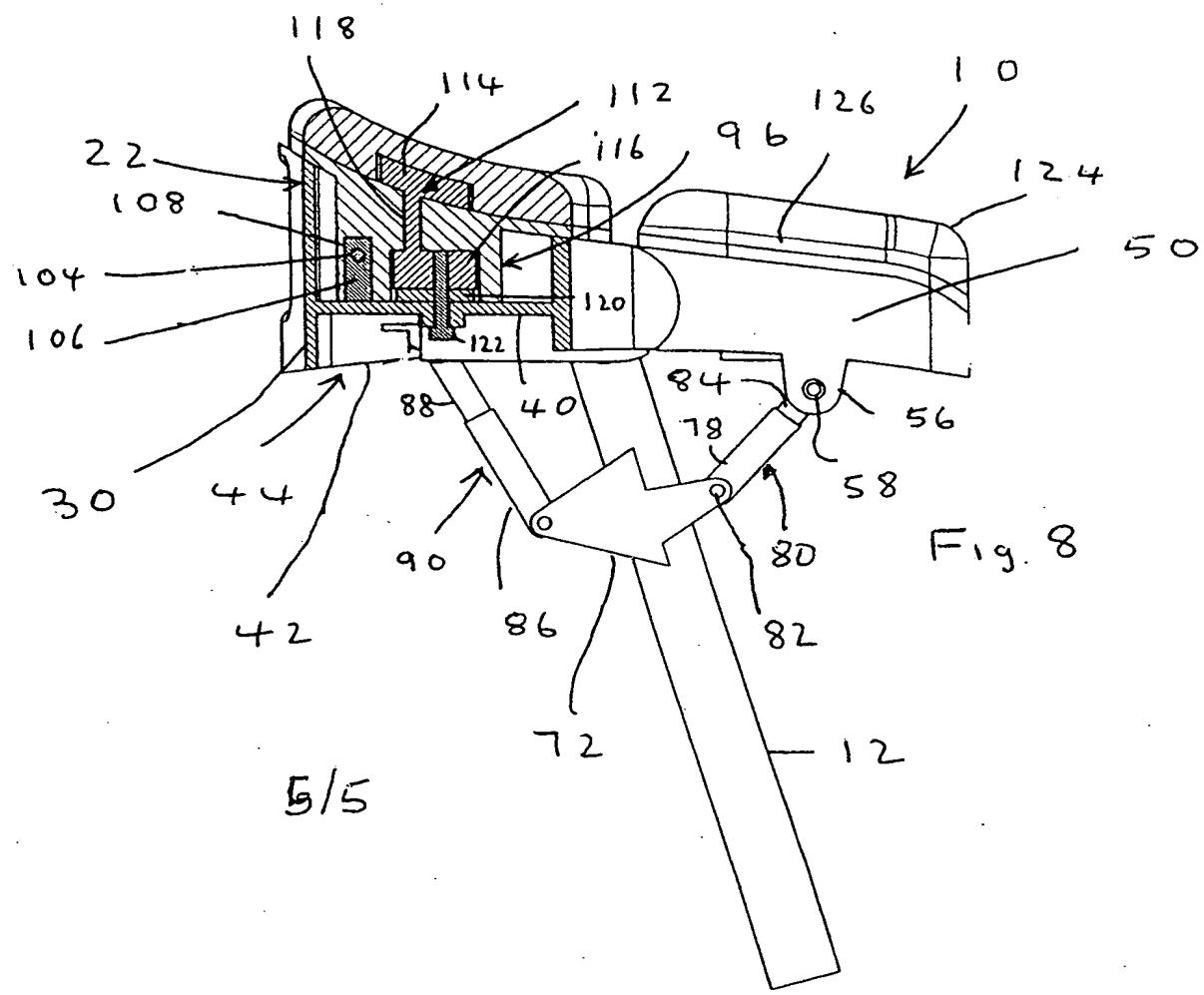
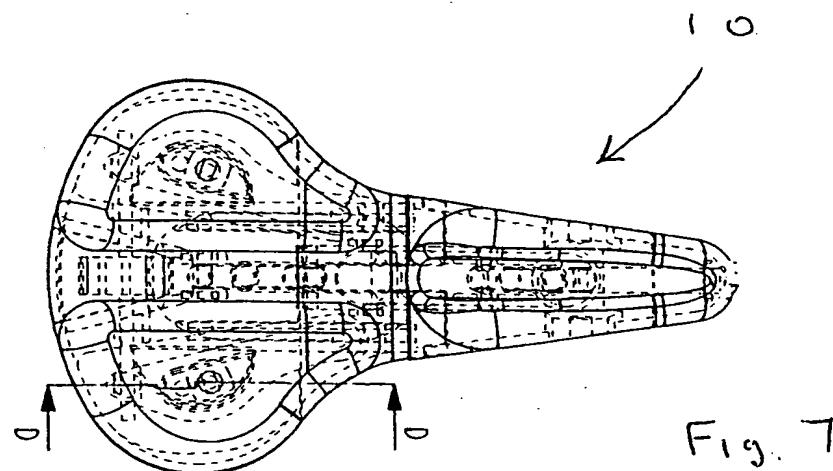
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Fig. 5



INTERNATIONAL SEARCH REPORT

International Application No.
PCT/ZA 99/00047

A. CLASSIFICATION OF SUBJECT MATTER

B62J1/00, //B62J1/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B62J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93/11025 A (HOBSON, R.S.) 10 June 1993, fig. 1,3, page 5, lines 14- 17.	1-3
A	--	8,11
X	US 5330249 A (WEBER et al.) 19 July 1994, abstract, column 4, lines 1- 13.	5
A	--	11
X	US 5738406 A (DEUS, J.L.) 14 April 1998, abstract, fig. 3.	5
A	--	
	US 4877286 A (HOBSON et al.) 31 October 1989,	1-3, 8, 11

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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30 August 1999

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

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International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	fig. 3. -- US 5123698 A (HODGES, M.W.) 23 June 1992. fig. 1,4. -----	1, 2, 8, 11

ANHANG

zum Internationalen Recherchenbericht über die internationale Patentanmeldung Nr.

ANNEX

to the International Search Report to the International Patent Application No.

ANNEXE

au rapport de recherche international relatif à la demande de brevet international n°

PCT/ZA 99/00047 SAE 239000

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten internationalen Recherchenbericht angeführten Patentdokumente angegeben. Diese Angaben dienen nur zur Orientierung und erfolgen ohne Gewähr.

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Im Recherchenbericht angeführtes Patentdokument - Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
WO A1 9311025	10-06-1993	AU A1 31489/93 US A 5352016	28-06-1993 04-10-1994
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US A 5738406	14-04-1998	keine - none - rien	
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US A 5123698	23-06-1992	keine - none - rien	